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ABSTRACT

An instructor's manual and student activity guide on silk screen printing are provided in this set of prevocational education materials which focuses on the vocational area of trade and industry (graphic arts). (This set of materials is one of ninety-two prevocational sets arranged around a cluster of seven vocational offerings: agriculture, home economics, distributive education, health occupations, world of work, trade and industry, and office occupations.) The instructor's guide is organized into the following elements: title of activity, duration of activity (six to nine periods), activity goals, eight instructional objectives, related vocational clusters, and activity implementation (description, materials needed, safety considerations, teacher preparation prior to class, during the class, follow-up activities, and masters for duplication [e.g., student check sheet, alphabet stencil master]). The student activity guide provides step-by-step instructions (narrative and illustrations) for completing each instructional objective (e.g., sketch at least fifteen badge ideas, identify tools and equipment used in silk screen printing and badge activity). At the end of each set of instructions is a student check point (evaluation activity). Eleven occupational descriptions (e.g., screen printer, print-shop helper) conclude the document. (JH)

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ED169349

T & I – GRAPHIC ARTS, SILK SCREEN PRINTING

Kit No. 60

INSTRUCTOR'S MANUAL

Prepared by

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State Department of Education
Office of Vocational Education
Prevocational Education
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In Cooperation With

Vocational Education Media Center
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Clemson, South Carolina 29631

1978

CE 020 534

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TITLE OF ACTIVITY

Kit No. 60, T & I — Graphic Arts, Silk Screen Printing

DURATION

Main Activity — 5 - 7 periods
Follow-up Activity -- 1 - 2 periods

GOALS

Each student will develop an understanding of one of the many phases of printing.

Students will gain an appreciation of hand-crafted items.

Students will express their own interests as they develop their own design idea.

INSTRUCTIONAL OBJECTIVES

Each student will identify tools and equipment used in the silk screen printing and badge activity.

Given proper tools, each student will practice cutting his/her first name on aqua film.

Given a circle pattern sheet, each student will sketch at least 15 badge ideas.

After the instructor inspects and returns the design sketches, each student will choose the design he/she likes the best and cut a stencil for silk screen printing.

Each student will attach his/her stencil to the silk screen frame.

Using the proper tools and equipment, each student will print 5 copies of his/her design.

Each student will cut out the design with a circle cutter.

After obtaining the proper materials, each student will manufacture a badge.

VOCATIONAL CLUSTERS

Home Economics, Health Occupations, Office Occupations, Agriculture, and Distributive Education

ACTIVITY IMPLEMENTATION REQUIREMENTS

A. Activity Description

Each student will design, develop, and produce a badge depicting the school's mascot or a local organization's slogan. Students will draw a design, cut out their own stencil, adhere it to the silk screen frame, and print their own design. This printed design will be cut out and mounted on a badge.

B. Safety

Care should be used when doing any manipulative operations with the razor knives.

C. Materials Required

1. Audio Visual Equipment — None

2. Technical Equipment
   5 squeegees
   10 razor knives
   2 badge makers
   2 circle cutters
   5 silk screen printing frames

3. Expendable Materials
   1 — 12 inches x 5 yards (30.5cm x 4.5m) roll of aqua film
   1 spoon
   1 quart can of water mask
   2 quarts of water base silk screen ink
   5 — 1 inch (2.54cm) paint brushes
   Old newspapers
   5 sponges
   5 containers for water
   *125 badge fronts, pinbacks, and clear plastic covers

D. Preparation Prior to Class

Assemble all technical and expendable materials. Locate work areas in your room where students can print, cut, and design without a human traffic problem. Duplicate VIEW sheets, student check sheet, circle masters and alphabet stencil sheet (one for each student).

E. During Class Session

Pass out the student activity guide and student check sheet. Read the introduction to your students found in the front of the student activity guide. Explain the importance of printing to our everyday lives in the form of newspapers, magazines, textbooks, notes, and even printed money.

Remind the students that this activity will demonstrate how printing can be utilized in the advertising of a school, local organization, or community. Remind all students upon completion of each objective you will sign their check sheets before they proceed to the next task.

As the instructor, your main task will be to inspect all students' work and supervise the safe operation of a potentially dangerous tool, the razor knife. Be sure all tools and materials are properly cleaned and stored at the end of each class period.

F. Follow-up Activities

1. Have each student fill out the VIEW FACT SHEET.
2. Have students identify advertisements in newspapers and magazines which appeal to them through graphic arts.

MASTERS FOR DUPLICATION

VIEW Fact Sheet
Student Check Sheet
Alphabet Stencil Master
Circle Master

*NOTE: Expendable materials for badge makers can be obtained by ordering from:

Badge-A-Minit
Box 618
LaSalle, IL 61301

VIEW FACT SHEET

NAME _____ CLASS _____ OCCUPATION _____

A. List the advantages (good points) of this occupation (job).

B. List the disadvantages (bad points) of this occupation (job).

C. List three things you should know to do this occupation (job).
1.
2.
3.

D. What type of education should you get to be prepared (do) for this occupation (job)?

E. What courses must you take to go into this occupation (job)?

F. What do you think your future in this occupation (job) will be?

G. What wage can you expect in this occupation (job)?

H. What are the working hours of this occupation (job)?

I. To learn more about this occupation (job), write to:

J. Using a scale of 1 to 5, circle the number that measures your interest in this occupation (job) as a possible career.

I don't like it. 1 2 3 4 5 I like it.

STUDENT CHECK SHEET

Objective No. 1

1. _____

2. _____

3. _____

4. _____

5. _____

Objective No.	Instructor's Signature
Check Sheet Objective No. 2	_____
Check Sheet Objective No. 3	_____
Check Sheet Objective No. 4	_____
Check Sheet Objective No. 5	_____
Check Sheet Objective No 6	_____
Check Sheet Objective No. 7	_____
Check Sheet Objective No. 8	_____

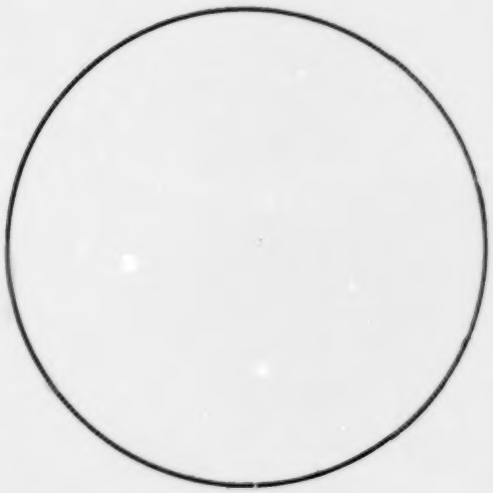
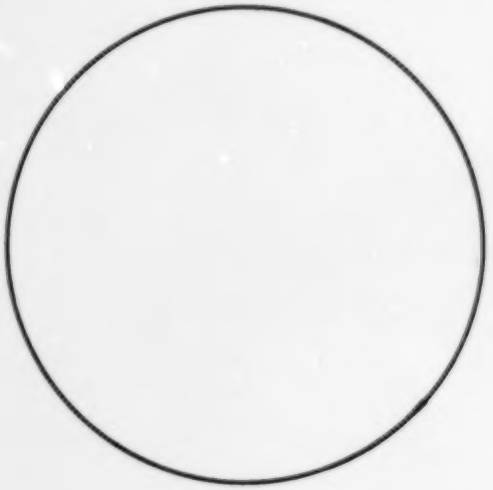
A B C D E

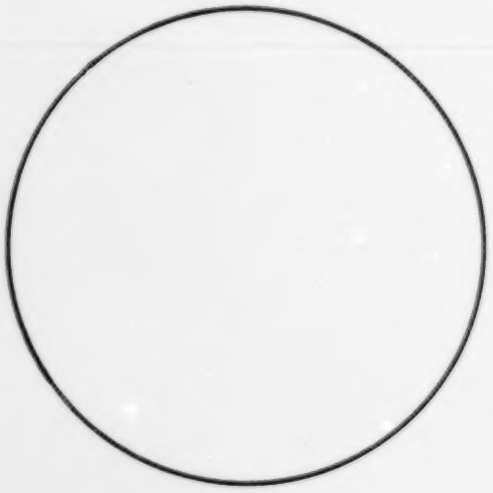
F G H I J

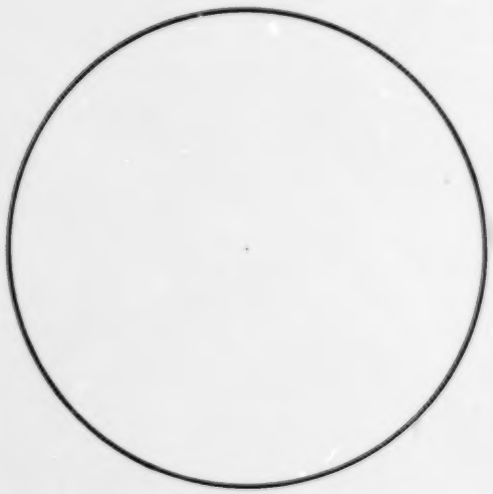
K L M N O

P Q R S T

U V W X Y Z





T & I – GRAPHIC ARTS, SILK SCREEN PRINTING

Kit No. 60

STUDENT

LEARNING ACTIVITY GUIDE

Prepared by

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INTRODUCTION

GRAPHIC COMMUNICATIONS is achieved by combining symbols and language to create meaning and preserve knowledge from one generation for another.

There are four major printing processes in the graphic communications industry: Screen process printing, Letterpress, Lithography, and Gravure.

– *Letterpress* is the oldest and most widely used, whereby printing is done from a raised surface, i.e., rubber stamp, typewriter. Elexography is a similar process except the type and/or plates are flexible (rubber) instead of metal and its main use is printing on plastic film as found in the packaging industry.

– *Lithography* – stone printing, as it originated near the end of the 18th century by Alois Senefelder. He discovered the basic concept of litho printing – oil and water do not mix. Offset Lithography is called by many names, namely: offset, photo-offset, litho, photolithography, photo-offset lithography. (Dry offset is a marriage between litho and letterpress with thin plastic coated metal plates. The plastic is etched away and the plate is then attached to a roller.) The litho process very simply stated is: a plate is processed, usually photographically, resulting in image and non-image areas. The image areas will not accept moisture but will accept ink, whereas the non-image area will be moistened and therefore repel grease base ink. The image area is neither raised nor recessed but is relatively the same height as the non-image areas. Ink therefore is transferred chemically rather than mechanically as is the case in the other three categories.

– *Gravure (Intaglio)* – opposite of letterpress printing. Letterpress prints from raised surfaces, gravure prints from depressed or recessed areas in a plate. As the plate is inked, a doctor blade scrapes off excess ink; the paper then passes over and creates a slight suction drawing ink from the depressed areas and transferring ink to the paper. The amount of ink printed is determined by the depth of the recessed areas and accounts for the great color fidelity and long runs this method is capable of.

– *Screen Process Printing* – This method of printing involves the use of a photographically or manually prepared stencil which is adhered to finely woven silk, metal, or synthetic screens which have been tightly stretched over a frame. An instrument called a SQUEEGEE forces ink, paint or dye through the open areas onto paper, bottles, cloth, plastic and many other items. The screen process may also be called mitography, seriography, silk screen printing.

GOALS

Each student will develop an understanding of one of the many phases of printing.

Students will gain an appreciation of hand-crafted items.

Students will express their own interests as they develop their own design ideas.

DIRECTIONS

After completing each objective, your instructor will sign your check sheet. Do not attempt any objective or task without finishing the prior checkpoint.

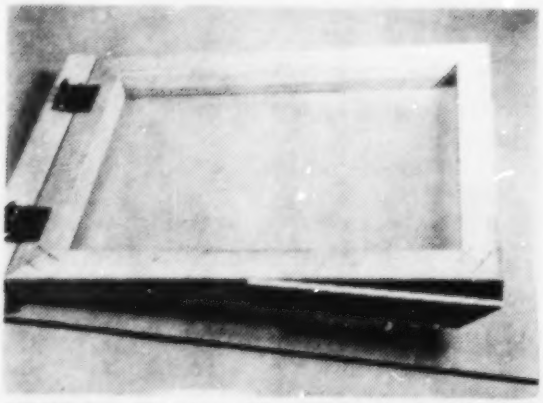
MATERIALS

Paper
Pencil
Silk screen frame
Squeegee
Sponge
Water container
Ink
Spoon
Razor knife
Badge maker
Circle cutter
Badge front
Badge back
Plastic badge cover
Old newspaper

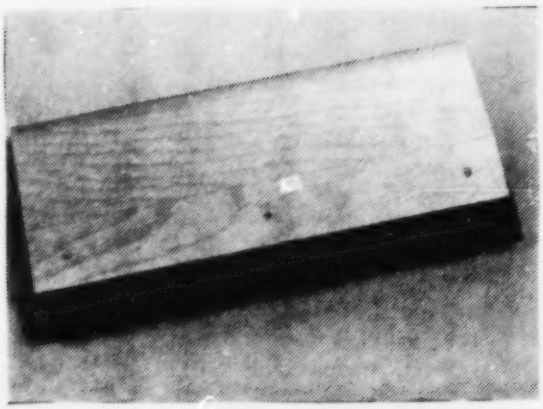
PROGRAMMED TEXT

Instructional Objective 1

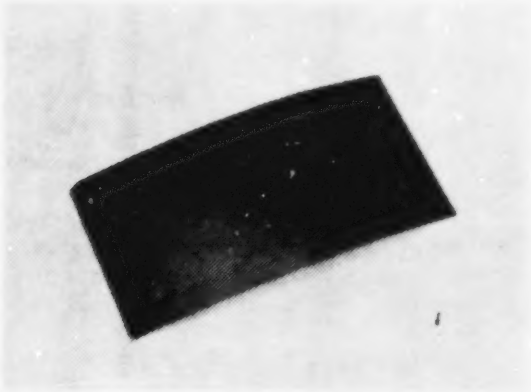
Each student will identify tools and equipment used in the silk screen printing and badge activity.



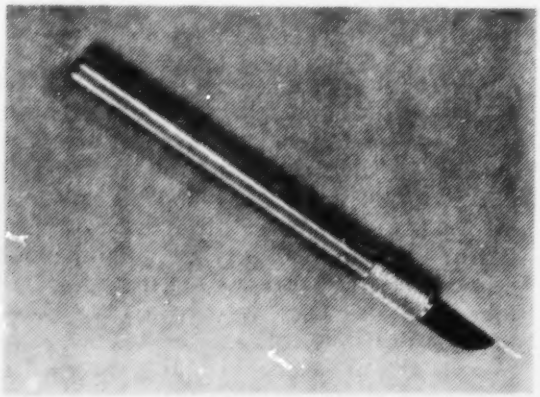
STEP 1 – This is a silk screen printing frame. It is used to hold a stencil (pattern or shape) of your design to be printed.



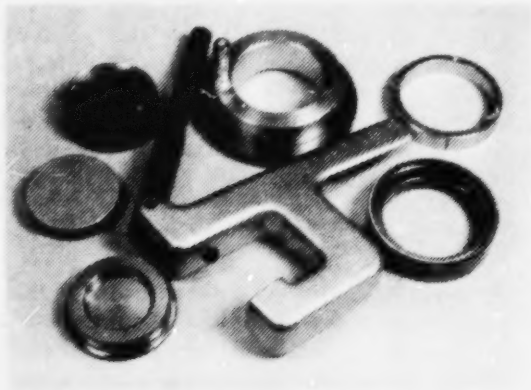
STEP 2 – The squeegee is used to draw the ink across the silk screen and force ink through the tiny holes in the silk.



STEP 3 – Aqua film is a water-based stencil with a plastic backing. This material can be cut into any shape or design you wish.



STEP 4 – Razor knives are used to cut a design on the aqua film stencil.

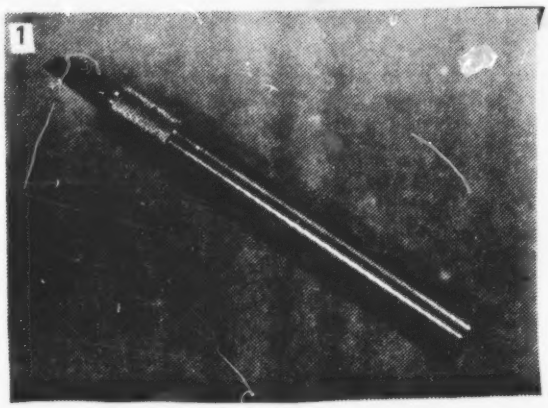


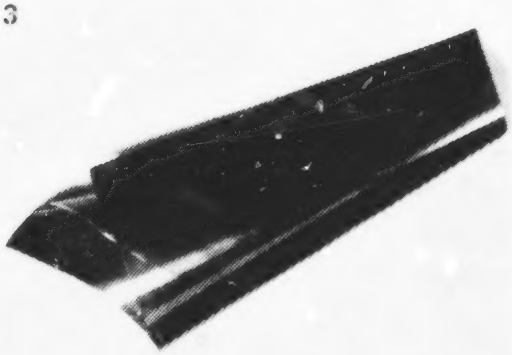
STEP 5 – The badge maker is a tool which presses a clear plastic cover over your design with a pin back. This process is used to create a badge.

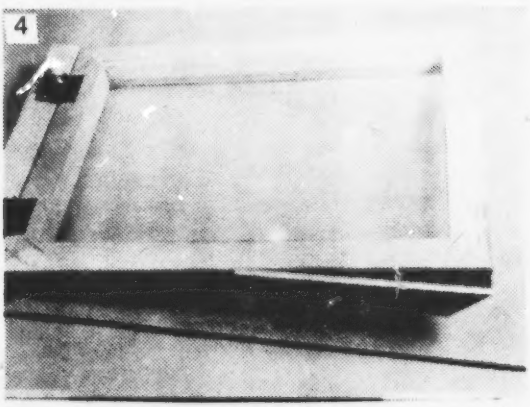
Check Point

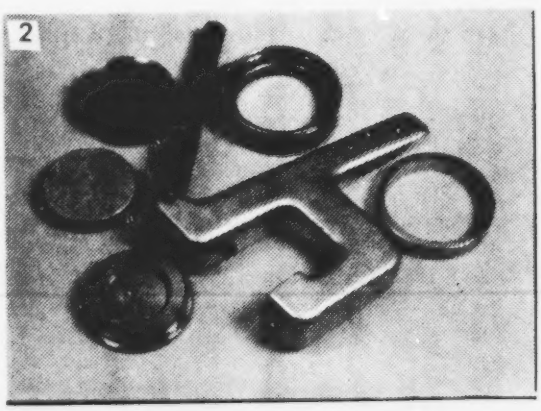
Using Check Sheet No. 1, identify the 5 items.

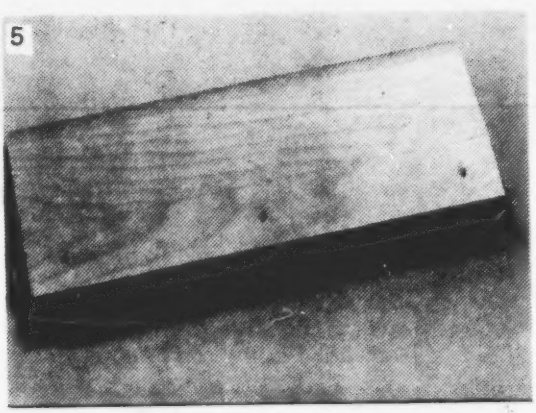
3





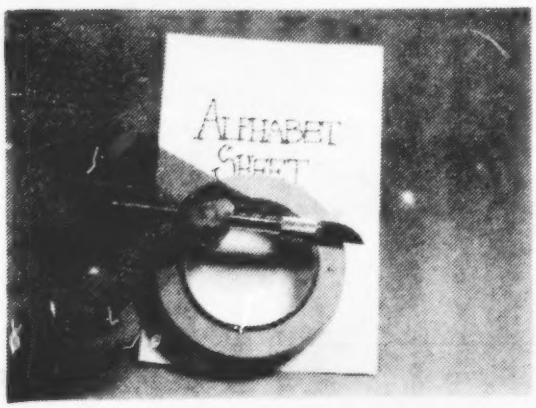




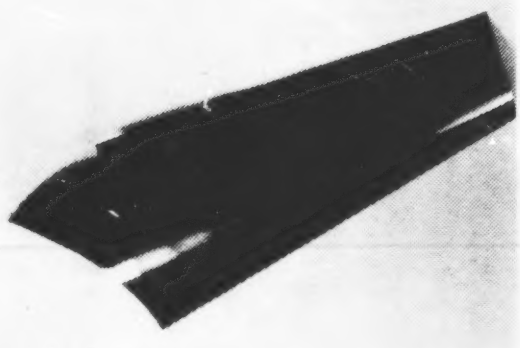


Instructional Objective II

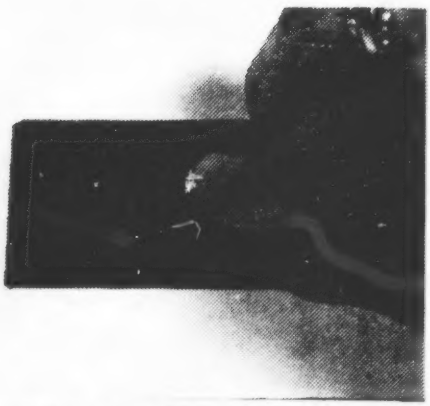
Given proper tools, each student will practice cutting her/his first name on aqua film.



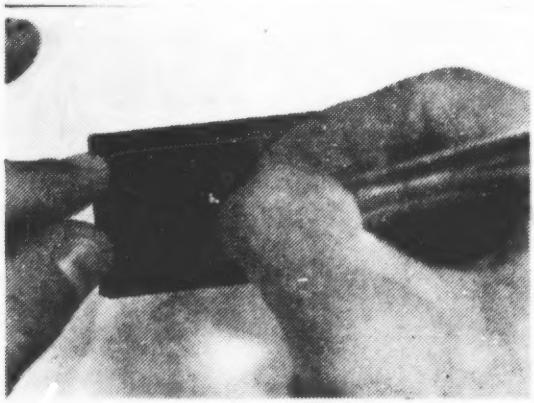
STEP 1 – Obtain one piece of aqua film, 1 1/2" x 3" (3.8 x 7.6cm), knife, tape, and letter stencil.



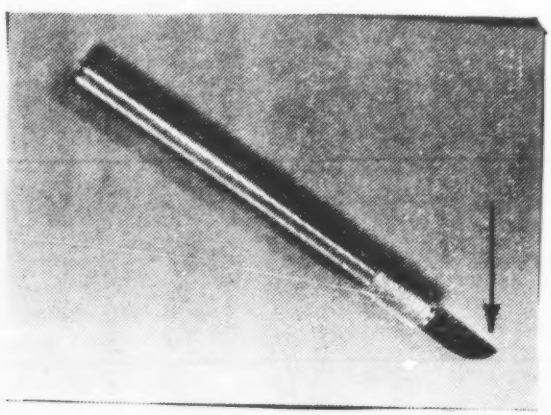
STEP 2 – When cutting the film, always have the slick, shiny side down.



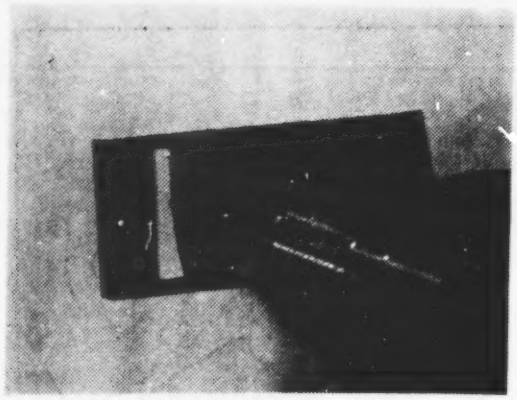
STEP 3 – Place a piece of aqua film over a letter on the stencil.



STEP 4 – Using the knife like a pencil, gently cut along the outside features of the letter.



STEP 5 – Do not apply too much pressure on the knife or you will cut through the film and the backing. The blade should only penetrate the film surface.



STEP 6 – Using the same procedure, cut out all the block letters of your first name.

STEP 9 – Check each letter for the proper depth of your cut.

Check Point

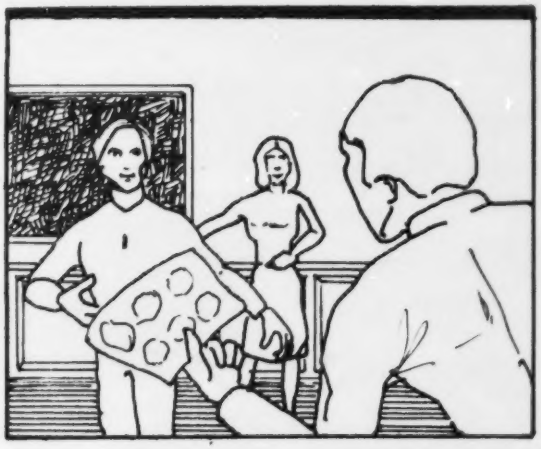
Ask the instructor to inspect your completed stencil cutting and sign check sheet No. 2.

STEP 7 – Use the knife to peel off the cut film from the backing material.

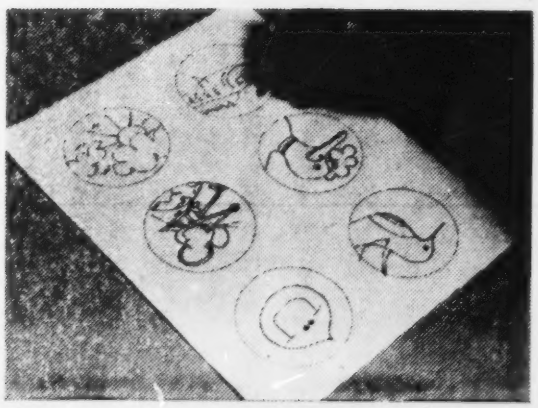
STEP 8 – Peel off all the letters of your name.

Instructional Objective III

Given a circle pattern sheet, each student will sketch at least 15 badge ideas.



STEP 1 – Obtain a circle pattern sheet from your instructor.



STEP 2 – Using each circle as a boundary for your idea, sketch creative themes (school name, your name, school mascot, town or state emblem).

STEP 3 – Upon completion of these sketches, turn the circle sheets in to your instructor.

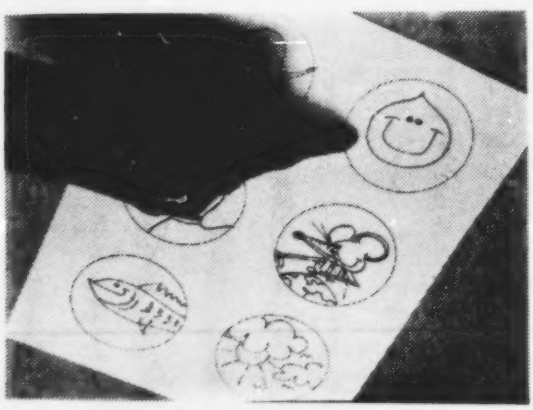
Check Point

Did you complete at least 15 ideas? Have your instructor sign your check sheet No. 3.

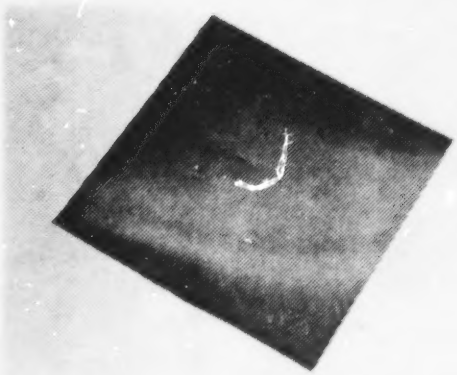
Instructional Objective IV

After your instructor inspects and returns the design sketches, each student will choose the design he/she likes the best and cut a stencil for silk screen printing.

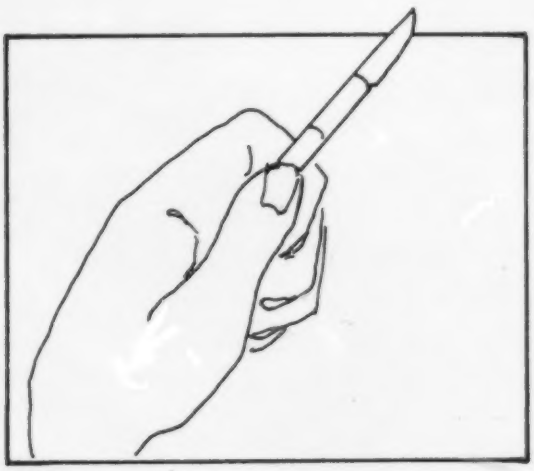
STEP 1 – Receive your inspected circle designs.



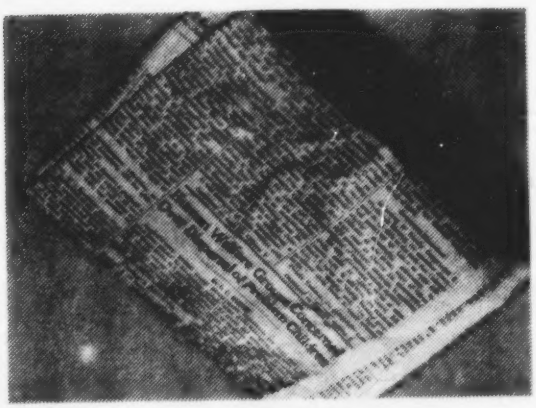
STEP 2 – Review all your sketches and choose the one sketch that you like.



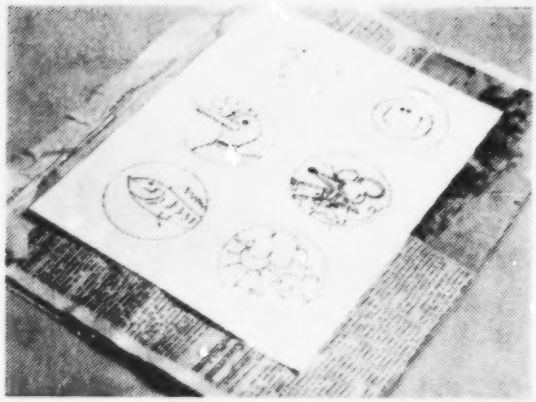
STEP 3 – Obtain a piece of aqua film 5" x 5" (12.7 x 12.7cm) from your instructor.



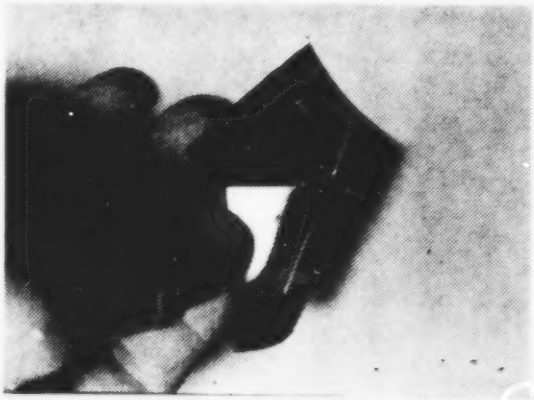
STEP 4 – Obtain a razor knife to use in cutting your stencil.



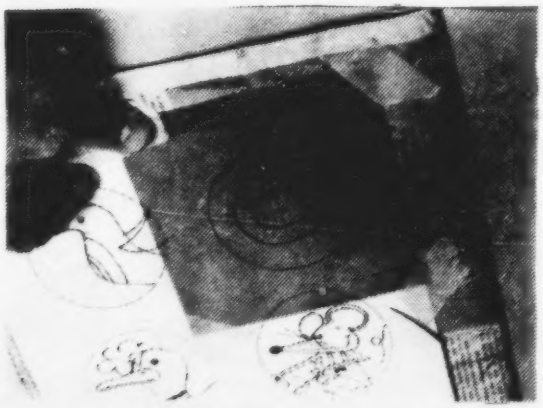
STEP 5 – Place old newspaper on your work area. This will prevent you from cutting and damaging the table top.



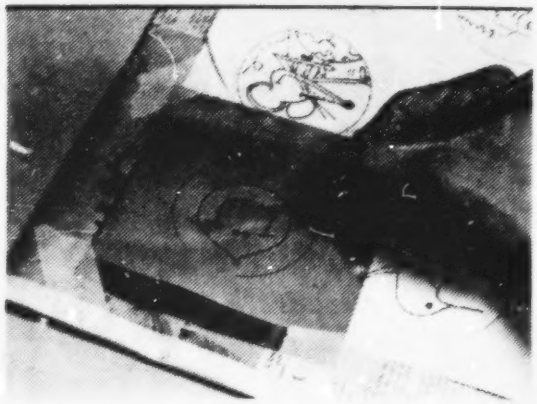
STEP 6 – Place the sketch of your badge on top of the paper.



STEP 7 – Locate the aqua film over the circle design.

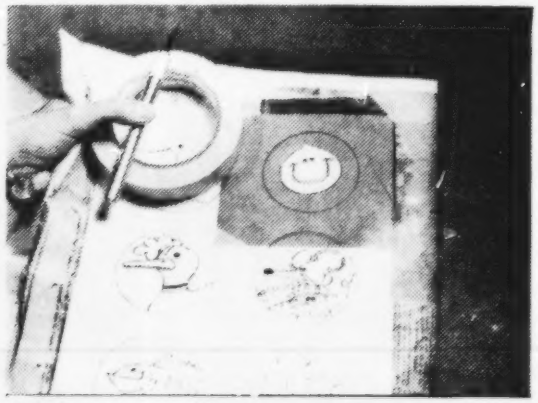


STEP 8 – Secure all corners of the aqua film stencil to the pattern sheet with 4 pieces of masking tape.



STEP 9 – Using the razor knife, gently cut around your design.

STEP 10 – Remove all cut out aqua film by peeling it off the plastic backing material.



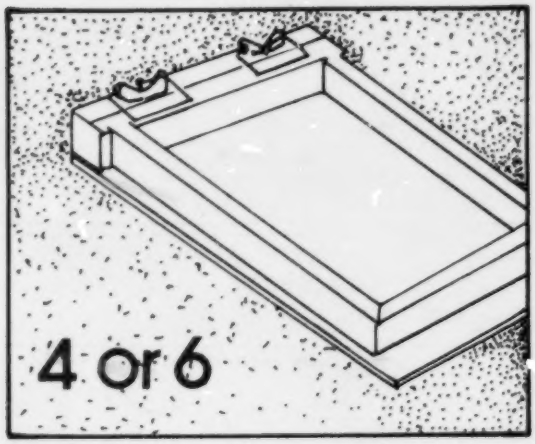
STEP 11 – After the stencil has been completed, return all equipment and clean your work area.

Check Point

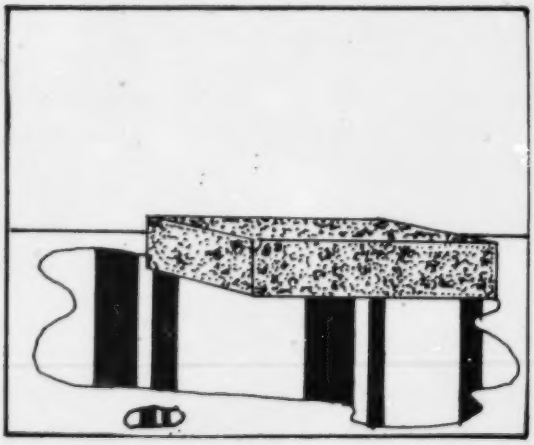
After you have cleaned your work area, ask your instructor to inspect your work and sign check sheet No. 4.

Instructional Objective V

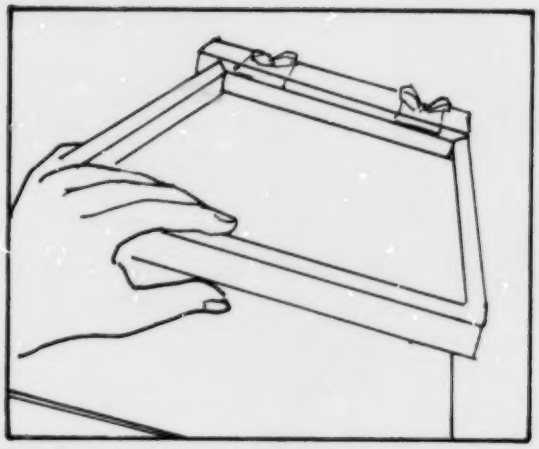
Each student will attach his/her stencil to the silk screen frame.



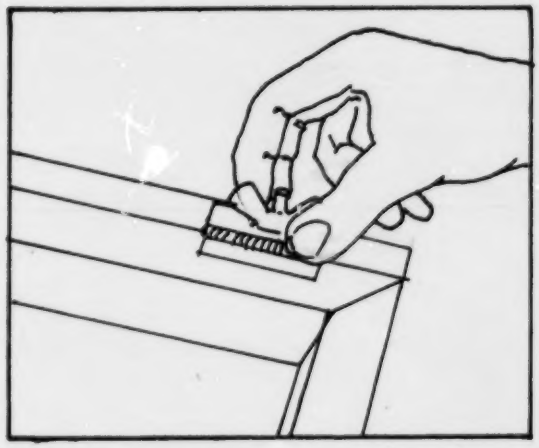
STEP 1 – The silk screen frame is large enough to accommodate 4 or 6 stencils depending on the size of your design.



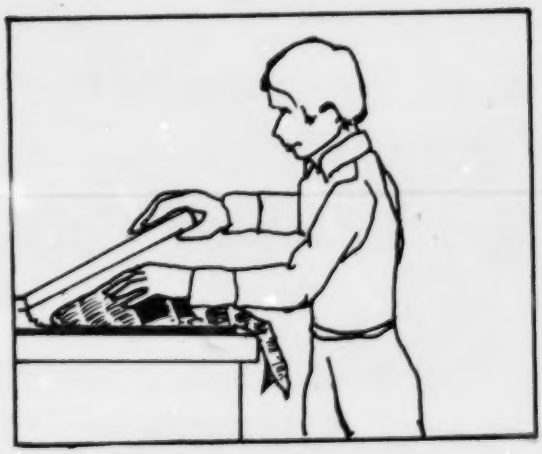
STEP 2 – Some water and a sponge are required to adhere the aqua film to the silk screen.



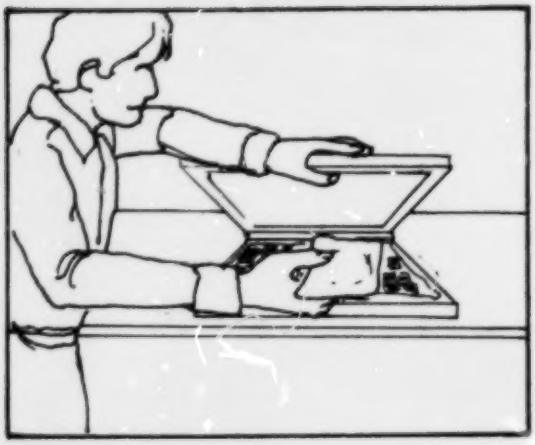
STEP 3 – Lift up the silk screen frame.



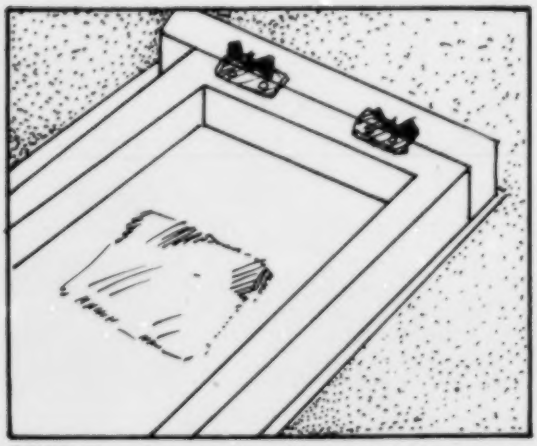
STEP 4 – Loosen the frame's wing nuts about two turns.



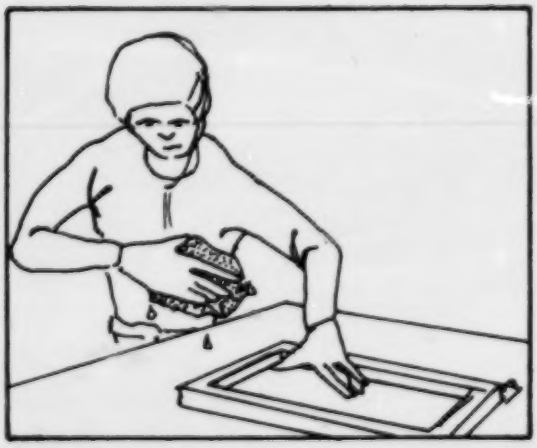
STEP 5 – Place one old newspaper between the silk frame and its wooden base. The paper will act as a cushion insuring good printing contact.



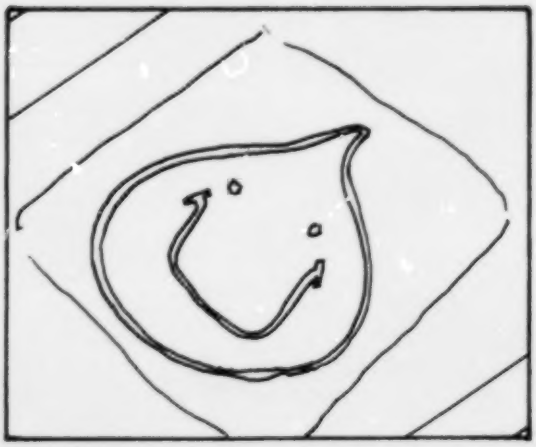
STEP 6 – Place your stencil on the newspaper.



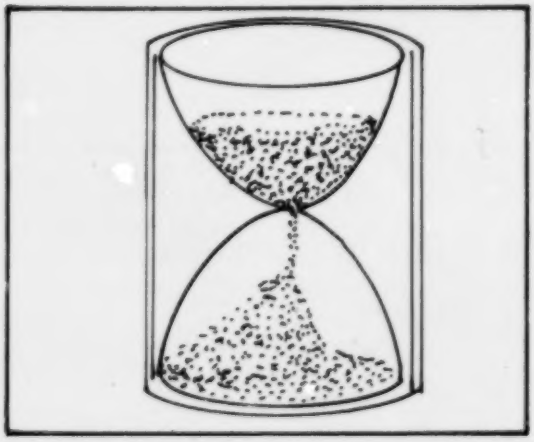
STEP 7 – Lower the silk screen frame so it lies on the stencil and newspaper.



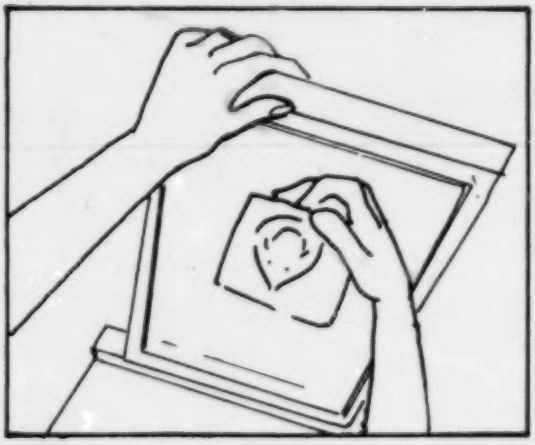
STEP 8 – Using a damp sponge, gently dab the entire aqua film surface.



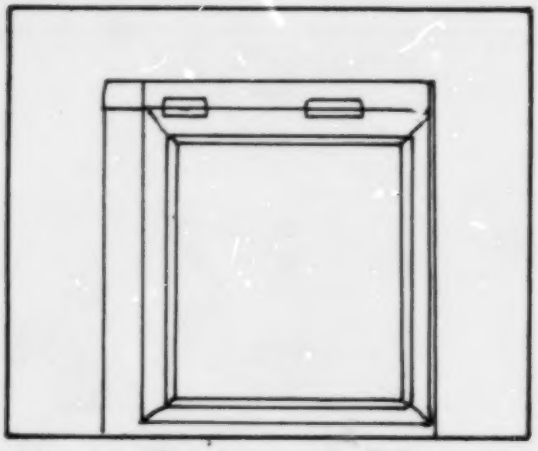
STEP 9 – The water will cause the film to adhere to the silk. Do not use too much water or you will dissolve the stencil.



STEP 10 – Wait 5 - 10 minutes until the film has dried.

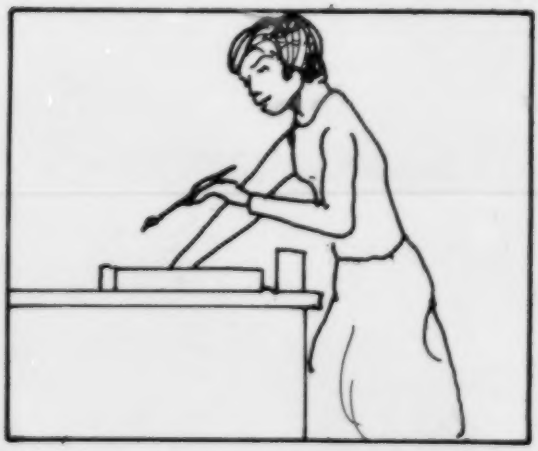


STEP 11 – After the film has dried, lift up the frame and peel off the plastic backing material.

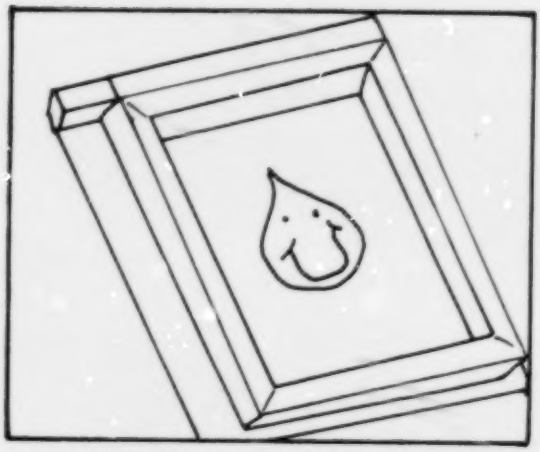


STEP 12 – Return the frame to its original position.

STEP 13 – Obtain a container of water mask, or water block out and a paint brush.



STEP 14 – Mask will cover any unwanted open areas on the silk screen. Using the brush, apply mask to all unwanted open areas between all the stencil designs.



STEP 15 – The frame is ready for operation when the mask has dried.

Check Point

Ask your instructor to inspect your work and sign your check sheet.

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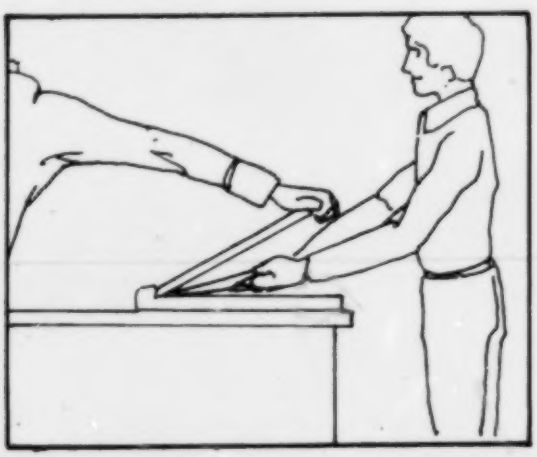
Instructional Objective VI

Using the proper tools and equipment, each student will print 5 copies of her/his design.

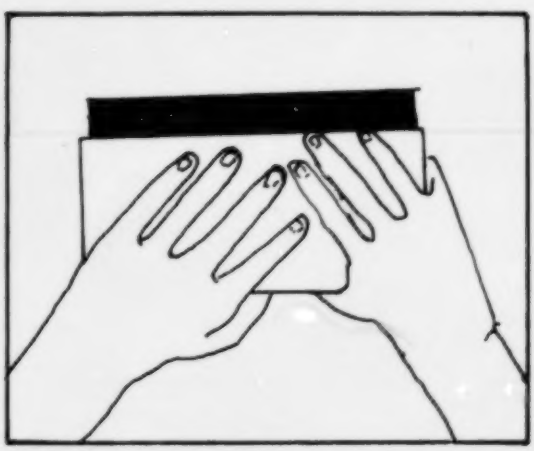
STEP 1 – Lift up the silk screen frame.



STEP 2 – Insert a piece of paper between the silk screen frame and the newspaper padding.

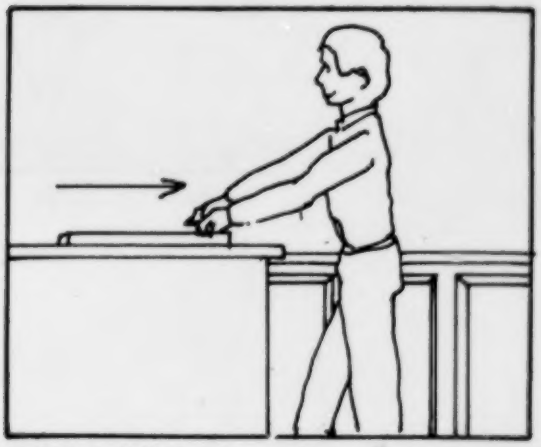
STEP 3 – Return the silk screen frame to its original position.

STEP 4 – Using a spoon, place some water base ink on the silk screen frame.



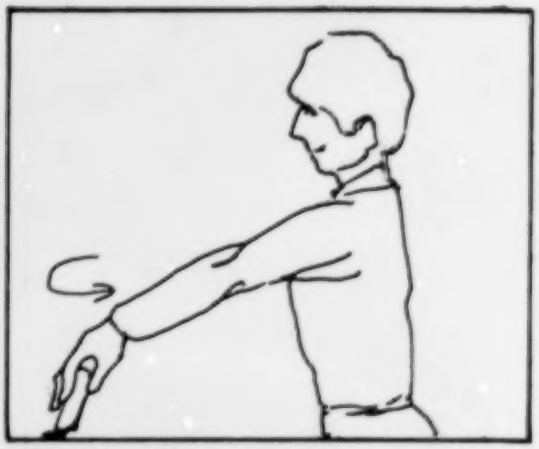
STEP 5 – Using both hands, grasp the wooden handle of the squeegee.

STEP 6 – Place the rubber edge of the squeegee flat on the silk screen surface.

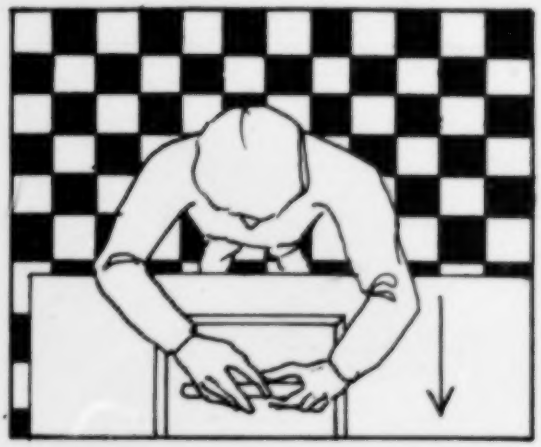


STEP 7 – With one motion and the squeegee at a slight angle, pull the squeegee toward you.

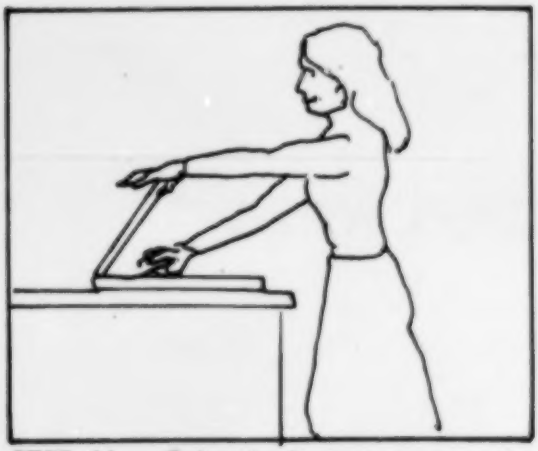
STEP 8 – This action will force the ink through the open holes of the silk and form the printed design on the paper.



STEP 9 – Lift up the squeegee and turn it around so the edge with the ink is opposite you.



STEP 10 – Place the squeegee on the silk screen and push it away from you.



STEP 11 – Raise the frame to remove the printed design. Caution: The ink is not dry; do not stack prints on top of each other.

STEP 12 – Repeat steps 1 - 11 until 5 copies are successfully printed.

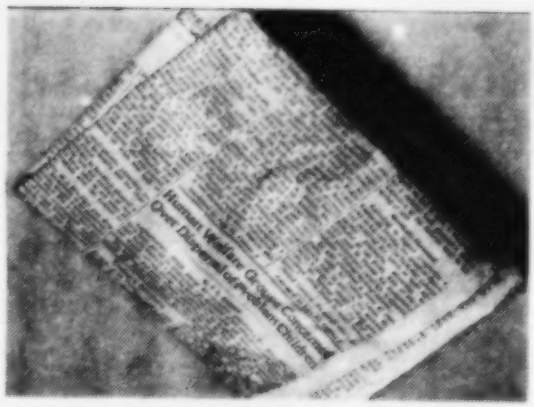
STEP 13 – Clean up all tools and equipment with warm soapy water.

Check Point

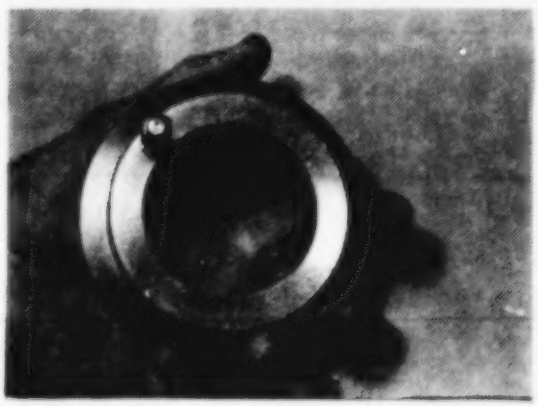
Turn one design in to your instructor for inspection and have your check sheet signed.

Instructional Objective VII

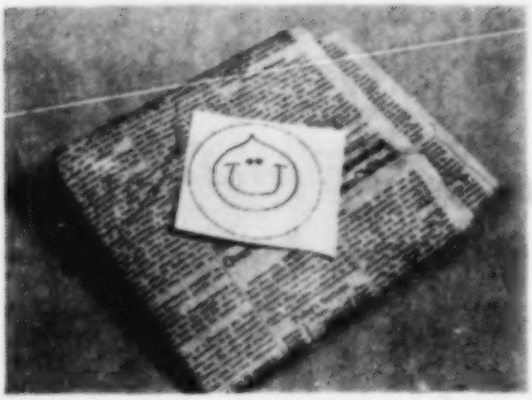
Each student will cut out the design with a circle cutter.



STEP 1 – Place a piece of cardboard or a few newspapers on your table top.

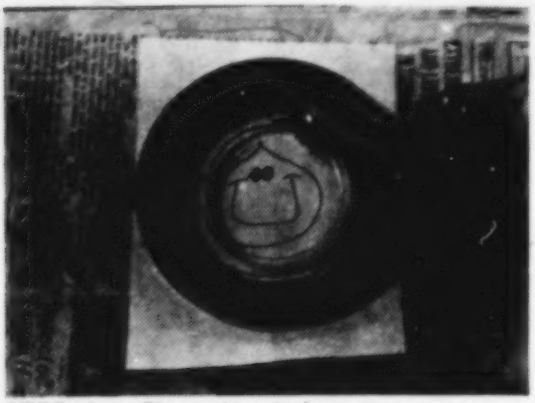


STEP 2 – Obtain the circle cutter from your instructor.



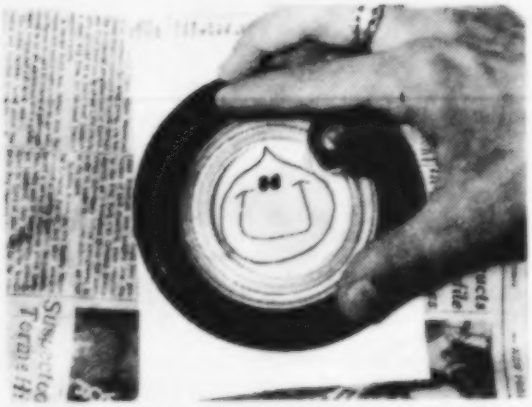
STEP 3 – Place the design on top of the newspapers or cardboard.

STEP 6 – Using one hand, hold the blue base firmly against the paper.

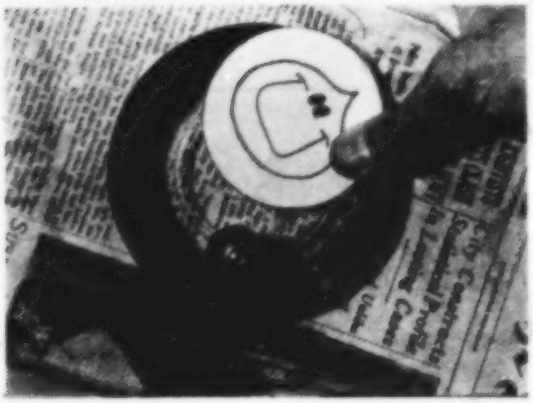


STEP 4 – Place the circle cutter over your design.

STEP 7 – With your other hand, grasp the red knob and rotate it 360° until you have cut your design in the shape of a circle.



STEP 5 – Line up your design by viewing it through the 2 1/4" (5.7cm) hole.



STEP 8 – Repeat this procedure until you have cut out all your designs.

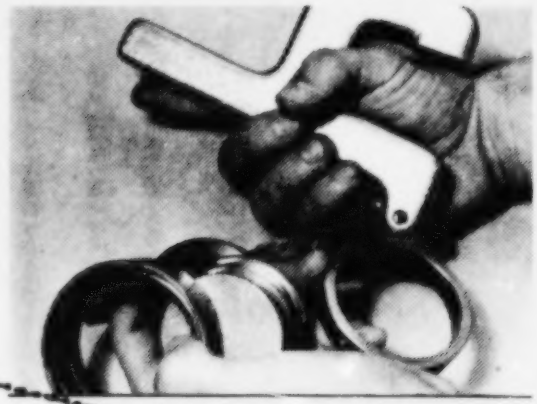
STEP 9 – Clean up your work area and return the circle cutter to your instructor.

Check Point

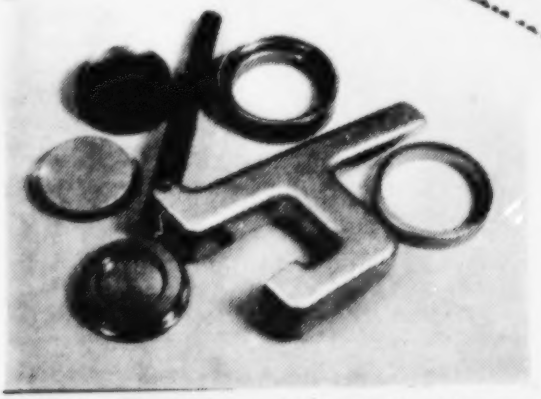
Ask your instructor to inspect your cut out designs and sign your check sheet.

Instructional Objective VIII

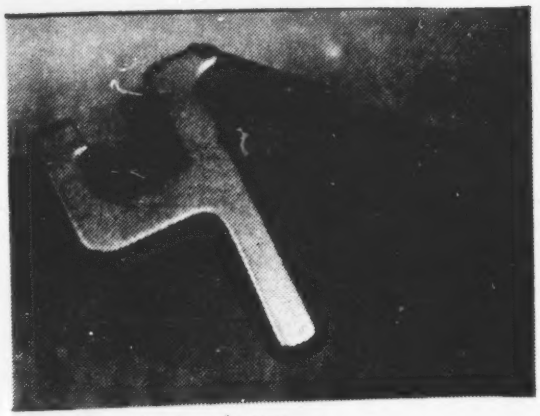
After obtaining the proper materials, each student will manufacture a badge.



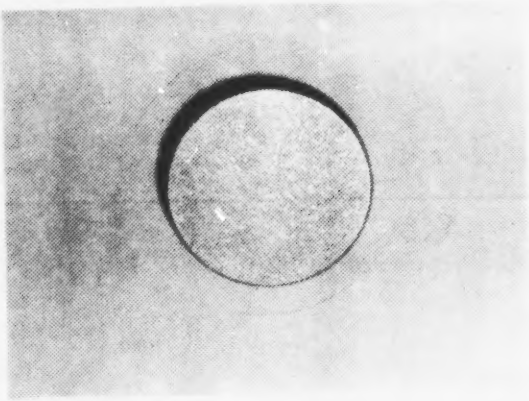
STEP 1 – Obtain a badge maker from your instructor.



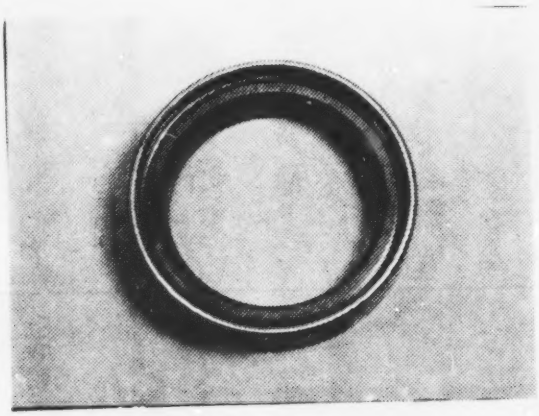
STEP 2 – The badge maker consists of 6 parts:



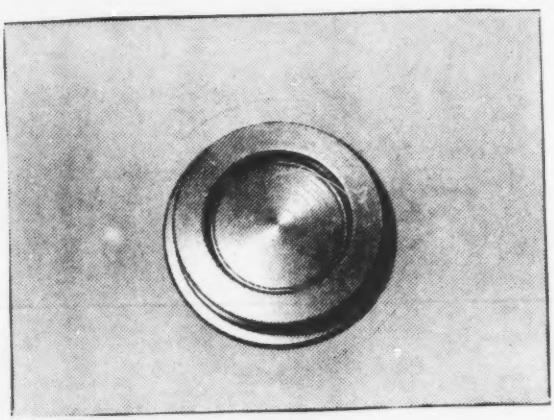
STEP 3 – the hand press,



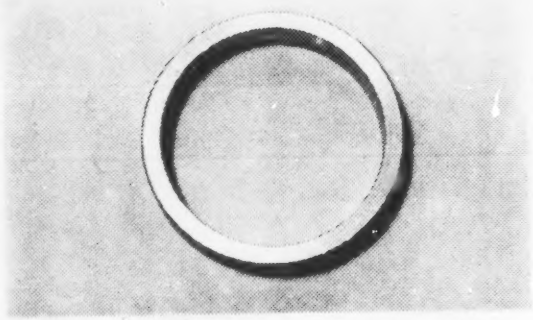
STEP 6 – silver die,



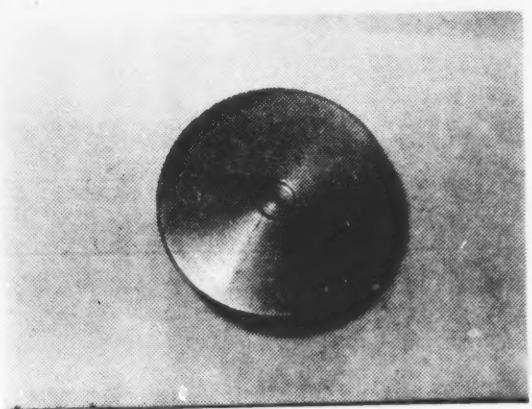
STEP 4 – blue die,



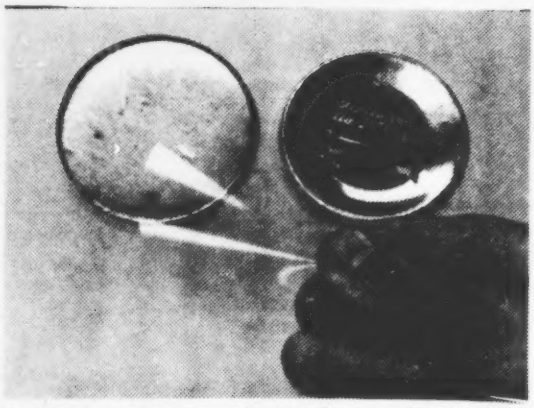
STEP 7 – green die,



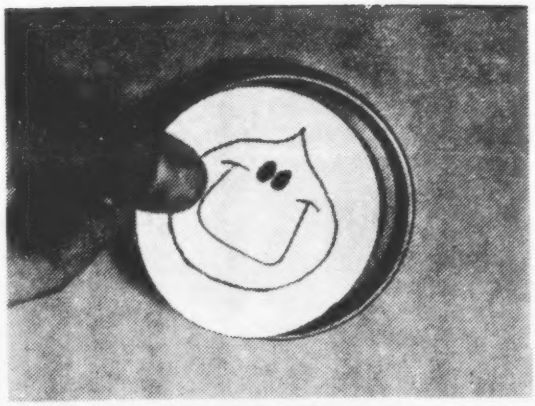
STEP 5 – gold die,



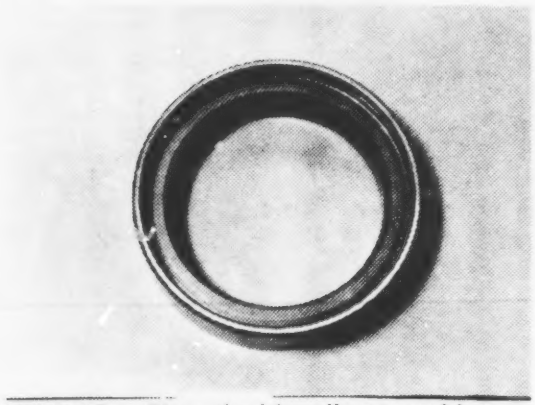
STEP 8 – and the red die.



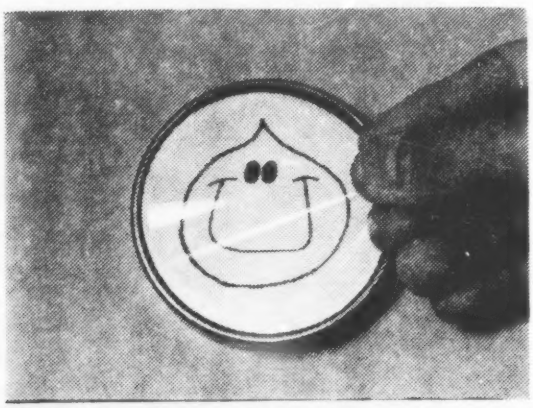
STEP 9 – Obtain a badge front, plastic disc, and back pin from your instructor.



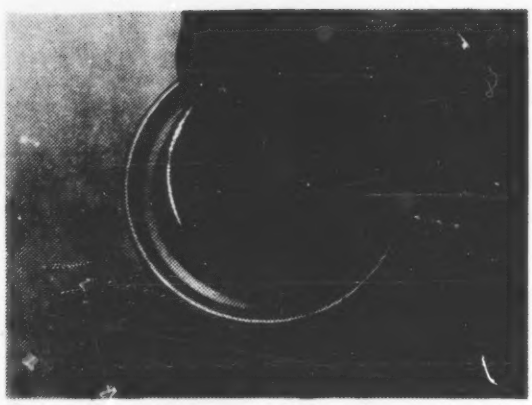
STEP 12 – Place the paper disc with the design up, on top of the badge front.



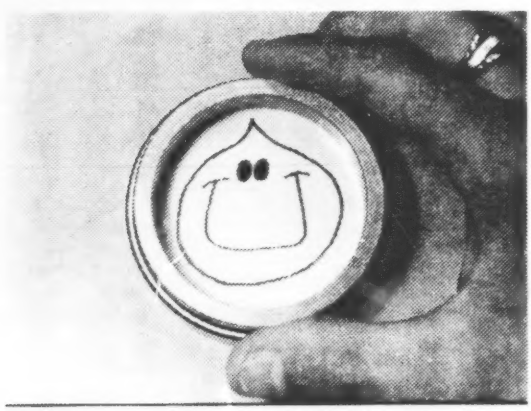
STEP 10 – Place the blue die on a table top. The side with the silver ring should be up.



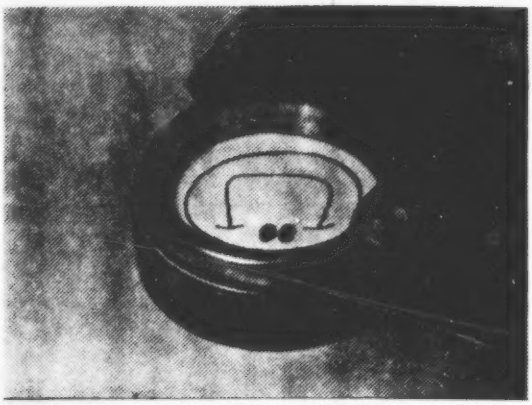
STEP 13 – Place a plastic disc on top of the paper design.



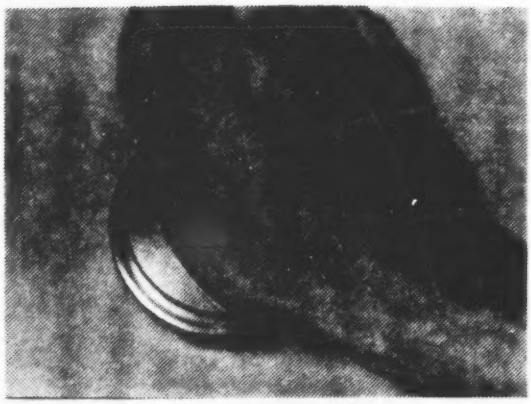
STEP 11 – Insert the badge front with the rounded edge up in the blue die.



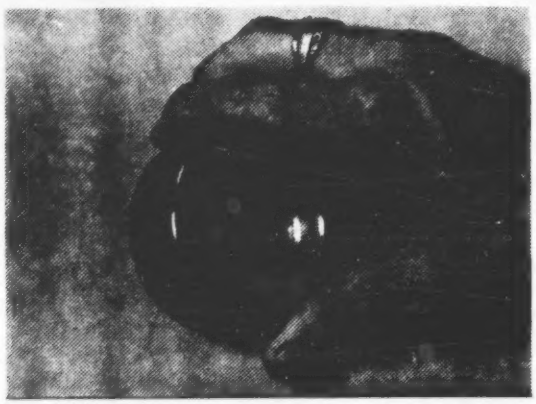
STEP 14 – Insert the gold die into the center of the blue die.



STEP 15 – Rotate the gold ring to position the black line on the top center of your design.

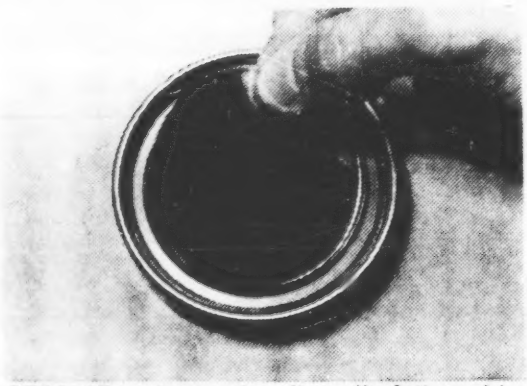


STEP 18 – Using the palm of your hand, press down on the green die until you hear the dies snap together.

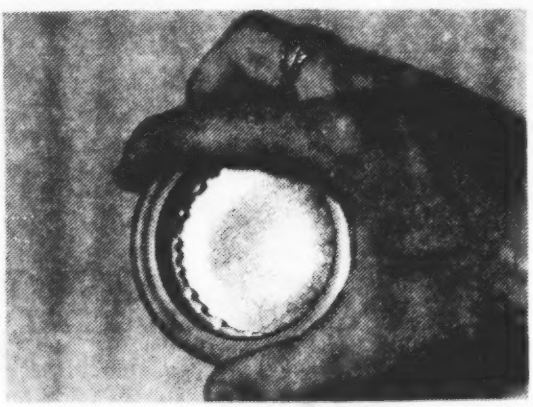


STEP 16 – Firmly grasp this unit and turn it over.

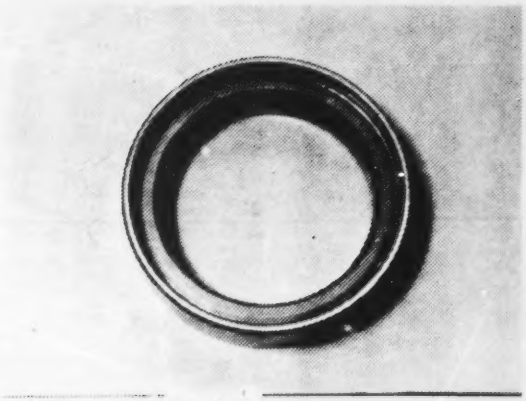
STEP 19 – Remove the green, silver, and blue dies.



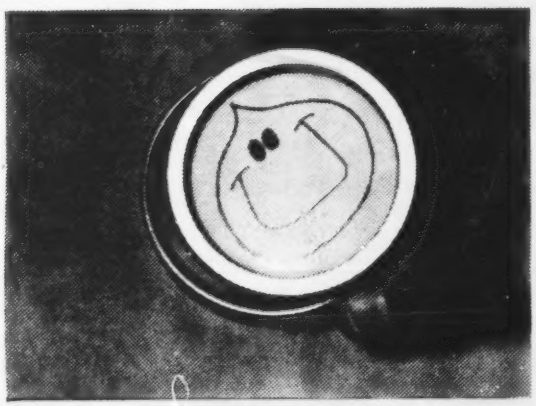
STEP 17 – Insert the silver die followed by the green die into the blue die.



STEP 20 – Leave the badge front in the gold die.

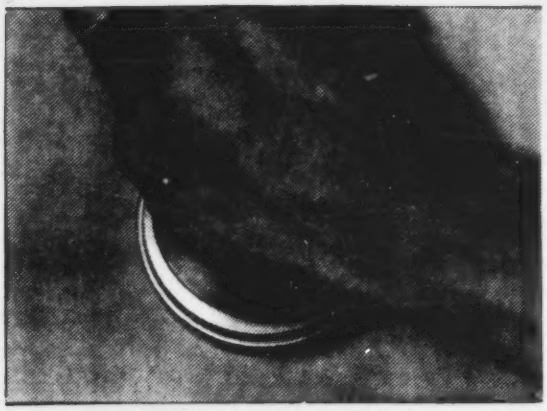


STEP 21 – Place the blue die on a table top. Position the die with the silver ring up.



STEP 22 – Insert the gold die with the design surface up in the blue die.

STEP 23 – Pick up the red die. The correct position will have the indented circle on the top surface.



STEP 24 – Place the red die into the center of the gold die and press these firmly together with the palm of your hand.

STEP 25 – Hold this entire unit firmly and turn it over.

STEP 26 – Insert the badge pin, clasp side up, into the center of the blue die.

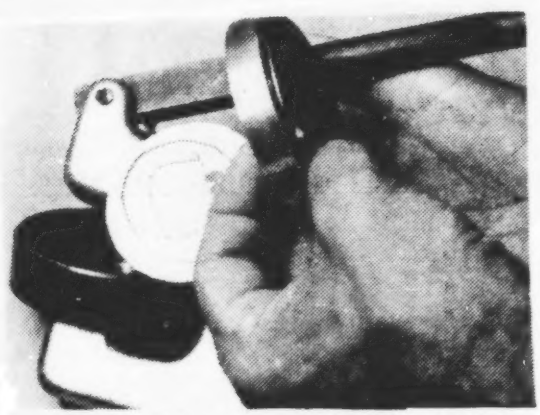
STEP 27 – Be sure to place the pin so the clasp and an imaginary line from the black mark on the gold die forms a T-shape.

STEP 31 – Squeeze the handles together.

STEP 28 – Place the green die into the blue die.

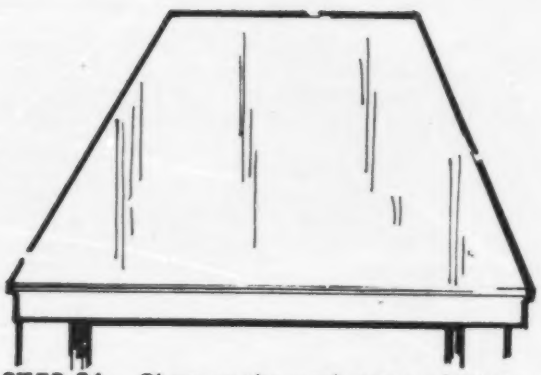
STEP 30 – Grip both handles of the hand press in one hand.

STEP 29 – Firmly grasp this entire unit and place it into the hand press. Be sure the locating pin of the hand press fits into the indented circle of the red die.



STEP 32 – Release the hand press and take apart all the dies to remove the completed badge.

STEP 33 – Repeat this entire process for additional badges.



STEP 34 – Clean up the work area and return tools to their proper place.

Check Point

Ask your instructor to inspect your completed badge and sign your check sheet.

979.131-018 SUPERVISOR, SILK-SCREEN CUTTING AND PRINTING (any ind.)

Supervises and coordinates activities of workers engaged in fabricating and assembling silk screens and in handprinting, utilizing silk-screen method: Trains workers in performance of tasks, such as screen cutting by hand, photographic screen making, and screen printing. Examines screens for imperfections and compares screens with customer artwork to verify conformance to specifications. Compares paint colors with artwork, color swatches, or samples to verify correct color choice and to ascertain paint compatibility with stock to be printed. Examines sample print to verify specified register of colors and shifts register marks on silk-screen frame or brushes block-out lacquer on defective areas of screen to correct color register. Requisitions materials and supplies. Confers with other unit supervisors to coordinate interdepartmental workflow. May fabricate and assemble silk screens and sandblast stencils. May supervise workers engaged in sandblasting decorative designs on material. Performs other duties as described under SUPERVISOR (any ind.).

979.137-014 SUPERVISOR, INSPECTING (wallpaper)

Supervises and coordinates activities of workers engaged in inspecting and packaging screen-printed wallpaper: Examines substandard wallpaper to determine repair procedures and corrective action required to prevent recurrence of defect. Rejects unsalvageable wallpaper. Compiles record of rejected wallpaper and reports probable causes to management for remedial action. Trains workers in inspecting and packaging procedures. Requisitions supplies and materials. Performs other duties as described under SUPERVISOR (any ind.).

979.137-018 SUPERVISOR, PRODUCTION (wallpaper)

Supervises and coordinates activities of workers engaged in handprinting and flocking wallcovering, utilizing silk-screen method: Monitors production activities and discusses methods and techniques with workers to improve performance. Performs other duties as described under SUPERVISOR (any ind.).

979.137-022 SUPERVISOR, SAMPLE PREPARATION (textile)

Develops dye formulas according to customer specification and supervises and coordinates activities of workers engaged in screen printing cloth samples by hand: Analyzes customer artwork and color card to determine number and type colors specified. Compares specified colors with standard color swatches to match colors and records mixing formulas from selected swatches. Monitors color weighing and mixing activities to insure adherance with formula specifications. Observes cloth printing activities to insure product conformance with standards. Examines printed samples for color penetration, off-center print, and to verify customer color specifications. Revises dye formulas to match shades desired by customer. Records data, such as customer name, pattern number, colors, and quantity desired and forwards data to production department. Performs other duties as described under SUPERVISOR (any ind.).

979.360-010 SCREEN-PRINTING-EQUIPMENT SETTER (wallpaper)

Sets up and adjusts silk-screen printing equipment used to handprint multicolored designs on wallpaper: Adjusts feed rollers and spindle reel to specified tension, using wrench. Compares ink prepared for printing run with master color swatch to confirm accuracy of match. Examines printing screen for sharpness of stencil design and feels screen to verify specified tension on frame. Measures distance between printing guide marker on table and center of screen and adjusts distance as required to insure specified color print registration. Starts drying oven and sets thermostat to temperature specified for printing run. Observes test run or manipulates equipment to produce test print. Examines print for defects and adjusts equipment to correct defective printing as required.

Monitors production activities to insure standard quality of printing. Trains workers in use of printing equipment.

979.382-018 GRAPHIC ARTS TECHNICAN (print. & pub.)

Reproduces and assembles graphic arts materials performing any combination of the following tasks: Operates machine to type master copies, such as stencils, tracings, direct plates, and photo-offsets in preparation for line copy reproduction [VARITYPE OPERATOR (clerical)]. Operates offset-duplicating machine to reproduce single or multicolor copies of line, drawings, graphs, or similar materials [OFFSET-DUPLICATING-MACHINE OPERATOR (print. & pub.)]. Sets up and operates various type cameras to produce plastic or paper plates, and negatives for later use in preparation of aluminum plates for reproduction in offset lithographic process. Positions material to be photographed, focuses lens, adjusts light, and exposes film to copy for specified period of time. Mixes chemical solutions, according to formula; and immerses film in solutions to develop negatives. Positions developed negative under masking sheet in lighted box that allows viewer to see negative through masking sheet. Strips (cuts out) masking sheet according to size and/or shape or image to be printed. Opaques blemishes and errors on negative, using brush and chemicals. Places finished masked negative on aluminum plate, and exposes plate to negative under arc lamp to transfer image to plate, using vacuum frame. Applies chemicals to plate to develop transferred image to be printed. Tends machines that assemble pages of printed material in numerical sequence [COLLATOR OPERATOR (clerical)]. Cuts, forms, sews, and glues components to form books, using stapling, drilling, and binding machines [BOOK BINDER (print. & pub.)]. Maintains machinery and equipment in operating condition. May inspect printed material to verify specified color and clarity of print, using lighted inspection table.

979.684-030 SCREEN PRINTER (textile) silk-screen printer

Prints designs on textiles, such as cloth, towels, bath cloths, sheets, and pillowcases, using screen and squeegee: Sets register guides along edge of printing table at intervals specified for pattern repeat. Pours color paste onto screen and positions screen against guides over cloth. Draws squeegee across screen to press color paste through open portion of screen and print design. Repeats process with different screen for each color in design. Washes screens with water or solvent to remove color paste.

979.684-034 SCREEN PRINTER (any ind.) decorator; letterer; screener; silk-screen operator; silk-screen painter

Prints lettering and designs on objects, such as posters, targets, instrument dials, furniture, glass, and toys, using screen printing device. Positions object against guides on setup board or holding *fixture* of screening device and lowers screen. Pours paint into screen frame or dips squeegee in paint and draws squeegee across screen to transfer design to object. Cleans screen with solvent at end of run and when using different colors. May mix paints according to standard formulas. May affix decals to parts and assemblies, using roller. May examine printed object for defects. May be designated according to object printed as TARGET-FACE MAKER (sports equip.). May tend semi-automatic machine that advances wallpaper under printing screen and be designated WALLPAPER PRINTER (wallpaper) II.

979.684-038 SILK-SCREEN REPAIRER (any ind.)

Repairs silk screens used in printing articles, such as glass, textile products, furniture, and toys, using handtools: Examines screens over lighted inspection table to detect holes in gelatin emulsion. Brushes blocking solution over holes. Measures alinement of design on article printed, using calipers and adjusts registration guides and tightens screen in frame to correct misalinement.

979.681-022 SILK-SCREEN CUTTER (any ind.) film cutter; silk-screen maker; stencil cutter

Cuts stencils by hand for use in silk-screen printing: Superimposes transparent gelatinous film or shellacked onionskin paper on design or lettering to be reproduced, and cuts outline of design, using knife. Irons stencil on silk or fine copper mesh screen to transfer film or shellac onto screen. Cuts additional stencils for each color to be printed in design. May draw design directly on screen and fill in surfaces around design with glue, lacquer, or paper. May print designs [SCREEN PRINTER (any ind.)]. May cut stencils for use in making computer circuit plug boards and be designated SILK-SCREEN-LAYOUT DRAFTER (any ind.).

979.684-026 PRINT-SHOP HELPER (print. & pub.)

Assists workers engaged in setting type, operating printing presses, and making plates, performing any combination of following duties: Moves material and supplies to and from various work areas. Assists in making ready and adjusting presses for production runs. Keeps presses supplied with paper stock. Cleans presses, printing plates, and type setups after use. Covers dampening rolls with wool or felt. Counts, stacks, and wraps finished printed material. Cleans electrotype shells prior to casting, and removes excess metal from edges or backs of cast printing plates, using metal trimming and shaving machines. Trims stereotype matrices to size and drys them between steam or flameheated plates. Immerses cast plates in copper and chrome plating solutions. Nails wooden blocks to backs of prepared plates to bring plates to printing level. May set type by hand following copy. May be designated according to work involved as ELECTROTYPER HELPER (print. & pub.); PHOTOENGRAVING HELPER (print. & pub.); STEREOTYPER HELPER (print. & pub.). Performs other duties as described under HELPER (any ind.).